

NATIONAL AVIATION UNIVERSITY
FACULTY OF TRANSPORT, MANAGEMENT AND LOGISTICS
LOGISTICS DEPARTMENT

METHODOLOGICAL RECOMMENDATIONS
FOR PREPARING STUDENTS FOR PRACTICAL CLASSES

on the subject « AVIATION MANAGEMENT »

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**MODULE 1 “Principles, functions and methods of interaction
management of aviation supply chain entities”**

**Practical Lesson No. 1 on topic 2 “The essence, tasks and features of
aviation management as an air transport management system”**

Aim:

- analyze the statistics data of airlines and airports.

Know:

- basic definitions and terms in aviation management;
- the essence, tasks and features of aviation management as an air transport management system.

Be able:

- to identify important statistics for airlines and airports, analyze them and identify trends.

Task:

1. Analyze the airline's transportation statistics for 3-5 years: the number of transported passengers / cargo, compare the number of available and performed passenger-km / ton-km / seat-km, revenue passenger-kilometers, revenue tonne-kilometer, volumes of transportation by region (for the last year), aircraft occupancy by route and in general, etc.

2. Analyze volume statistics for 3-5 years: the number of sent / received passengers / cargo, Number of flights, Delays, On-Time Performance, Security Checkpoint Wait Time, Turnaround Time, Lost Baggage Data, etc.

For analysis, select the airline and airport according to Table:

No.	Airline	Airport
1	Air Canada	Denver International
2	China Southern Airlines	Shanghai Pudong International
3	Turkish Airlines	George Bush Intercontinental
4	Southwest Airlines	Beijing Daxing International
5	Delta Air	Washington Dulles International
6	Lufthansa	Orlando International
7	Ryan Air	Dallas/Fort Worth International
8	American Airlines	King Fahd International

Practical Lesson No. 2 on topic 3 “Theoretical and methodological foundations of aviation logistics management”

Aim:

- applying of methodological principles of aviation management.

Know:

- basic regulations, standards and rules of regulation of international air transport;
- evolution of logistics management methodology;
- organization and functioning of logistic business processes, networks, chains, flows, systems.

Be able:

- to build, describe and analyze the organization scheme of airline and airport.

Task:

1. Build, describe and analyze the organization scheme of airline and airport. For analysis, select the airline and airport according to Table:

No.	Airline	Airport
1	Air Canada	Denver International
2	China Southern Airlines	Shanghai Pudong International
3	Turkish Airlines	George Bush Intercontinental
4	Southwest Airlines	Beijing Daxing International
5	Delta Air	Washington Dulles International
6	Lufthansa	Orlando International
7	Ryan Air	Dallas/Fort Worth International
8	American Airlines	King Fahd International

Practical Lesson No. 3 on topic 4 “Scientific principles of aviation logistics management”

Aim:

- applying a process approach to the management of airlines and airports.

Know:

- definition “process approach”;
- benefits of integrated logistics systems in air transport;
- main principles of management.

Be able:

- to build, describe and analyze the chain of organization of passenger/cargo air transportation along the selected route;
- to build and describe passenger/cargo service chains at the airport for domestic and international flights.

Task:

1. Build and describe the chain of organization of passenger/cargo air transportation along the selected route.

2. Build and describe passenger/cargo service chains at the airport for domestic and international flights.

For analysis, select the airline and airport according to Table:

No.	Airline	Airport
1	Air Canada	Denver International
2	China Southern Airlines	Shanghai Pudong International
3	Turkish Airlines	George Bush Intercontinental
4	Southwest Airlines	Beijing Daxing International
5	Delta Air	Washington Dulles International
6	Lufthansa	Orlando International
7	Ryan Air	Dallas/Fort Worth International
8	American Airlines	King Fahd International

Practical Lesson No. 4 on topic 5 “Functions of logistics management of airlines”

Aim:

- applying functions of logistics management of airlines.

Know:

- the concept of production (operation) functions of logistics;
- functions of logistics management;

Be able:

- calculate the forecast.

Task. Forecast in aviation management by Holt-Winters method

In the table 1 presents quarterly data on the volume of freight traffic for three years.

Table 1 Air freight flow data

Year	Quarter	Period, t	Air freight flow y_t, T
1	I	1	300
	II	2	320
	III	3	325
	IV	4	295
2	I	5	310
	II	6	325
	III	7	340
	IV	8	305
3	I	9	315
	II	10	335
	III	11	350
	IV	12	310

Practical Lesson No. 5 on topic 6 “Methods and technologies of aviation logistics management”

Aim:

- applying methods and technologies of aviation logistics management.

Know:

- specifics of organizational forms of business process management in logistics systems of airline companies;
- classification of logistics management methods;
- methods of effective logistics management;
- peculiarities of managing modern logistics technologies.

Be able:

- to build Fixed-Order Quantity System and Fixed-Time Period System.

Task.

Build six deliveries used Inventory Control System (Fixed-Order Quantity System and Fixed-Time Period System), when the Basic Data is:

- Demand 91 250 units per year;
- Fixed Order Cost is 500 UAH;
- Storage Cost is 0.04 UAH per day;
- Delivery Lead Time is 3 days;
- Delay Time of Delivery is 2 days per 1, 2 and 4 deliveries;
- Period of Control is 365 days.

Practical Lesson No. 6 on topic 7 “Strategy and tactics of logistics management of aviation companies”

Aim:

- to carry out strategic and tactical planning during the management of aviation companies.

Know:

- conditions, opportunities and expediency of creating stabilization, functioning, transformation, development and liquidation of logistics departments or enterprises and networks;
- modern ways of implementing partnership and integration of enterprises and organizations of a complete system of air transport activities;
- basic strategic directions of organization and management of logistics functions and business processes.

Be able:

- to build Mixed Inventory Systems.

Task.

Build six deliveries used Inventory Control Systems (Replenishment Inventory System and Max-Min Inventory System), when the Basic Data is:

- Demand 91 250 units per year;
- Fixed Order Cost is 500 UAH;
- Storage Cost is 0.04 UAH per day;
- Delivery Lead Time is 3 days;
- Delay Time of Delivery is 2 days per 1, 2 and 4 deliveries;
- Period of Control is 365 days.

Practical Lesson No. 7 on topic 8 “Modern organizational forms of partnership management in logistics chains of air transportation”

Aim:

- to apply modern organizational forms of partnership management in logistics chains of air transportation.

Know:

- modern trends of vertical integration;
- consecutive stages of the formation of a chain of complex logistics services;
- stages of partnership formation;
- market distribution of risks, powers and responsibilities of logistics network entities.

Be able:

- to choose service provider in aviation management.

Task.

You are the head of the cargo department of the airline. Your airline is planning to open a flight on a new route. Task:

Choose an airline.

Select the airport to which the flight opens.

Identify a minimum of three cargo handling companies at this airport.

Define one relay criteria, at least three quantitative criteria and qualitative criteria. Determine the rank for each criterion, taking into account the opinions of the CEO, CFO and your opinion.

Evaluate the selected cargo handling companies according to the specified indicators.

Choose a cargo handling provider based on Integrated rate method.

Practical Lesson No. 8 on topic 9 “Cluster strategy of airport-hubs in the system of regulation of air transportation of chains”

Aim:

- to apply cluster strategy of airport-hubs in the system of regulation of air transportation of chains.

Know:

- basic concepts of clustering;
- cluster according to M. Porter;
- classification of clusters.

Be able:

- to apply pivot tables to analyze a large array of airline and airport data.

Task.

A pivot table allows you to extract the significance from a large, detailed data set.

The information of departure and arrival flights via airport “Boryspil” are presented in file Task_8. The information of codes and name of airlines and the information of codes and name of airport are present in file Codes of Airlines and Airports.

You should solve the next task:

- I. Create pivot table of information of monthly summary quantity of arrival passengers for each airline.
- II. Create pivot table of information of monthly summary quantity of arrival passengers to Boryspil from each departure airport.
- III. Identify the most popular type of aircraft for UIA flights.
- IV. Identify the airline with the highest traffic load.

Practical Lesson No. 9 on topic 10 “Regulation of international air transport”

Aim:

- to apply the knowledge of ICAO Doc. 9626 for the management of relations between airlines and airports.

Know:

- peculiarities of control, regulation and management systems in air transport;
- the structure, legal framework of the bodies carrying out the regulatory process at the national, regional and international levels;
- ICAO standards, regulations, rules and other instructional materials on the regulation of air transport activities;

- categories of air transport markets;
- rules of negotiations, consultations, coordination and conclusion of agreements, regulation and resolution of conflicts.

Be able:

- to determine the airline's access rights to air transportation.

Task.

According to the initial data, determine the “freedoms of the air” along the route.

ROUTE	Commercial Rights		
	1 st point	2 nd point	3 rd point
Honolulu - Denver - Quebec	Load	Unload and Load	Unload

Practical Lesson No. 10 on topic 11 “Economic aspects of air navigation service of air transport”

Aim:

- to apply knowledge of ICAO Doc 9161 to manage relations between interested aviation companies in aeronautical air transport services.

Know:

- organizational structuring of the aeronautical flight service system;
- air navigation infrastructure, types and characteristics of services;
- system instructional rules and regulations for the functioning of state and operational services, airport and navigation fees assigning authorities;
- principles, policies and procedures of navigation service;
- functions of the state department.

Be able:

- to determine air navigation infrastructure, types and characteristics of services in different states.

Task.

To determine and compare air navigation infrastructure, types and characteristics of services in two different states.

No.	First state	Second state
1	Ukraine	Germany
2	Moldova	Romania
3	USA	Canada
4	Brasil	Peru

5	Kazakhstan	Mongolia
6	United Kindom	France
7	South Korea	Japan
8	India	Thailand

Practical Lesson No. 11 on topic 12 “Synergistic efficiency of aviation management”

Aim:

- to apply organizational corporate culture and moral and ethical principles of interaction between subjects of aviation activity.

Know:

- the role of international air transport;
- the types of communication in international air transport;
- fundamental principles of partnership in aviation activity;
- benefits of partnership in aviation activity;
- definition “synergy”.

Be able:

- to analyse of efficiency of organizational corporate culture of aviation companies.

Task.

Analyse of efficiency of organizational corporate culture of aviation companies. For analysis, select the aviation companies according to Table:

No.	First aviation company	Second aviation company
1	Air Canada	China Southern Airlines
	Denver International	Shanghai Pudong International
2	Turkish Airlines	Southwest Airlines
3	Beijing Daxing International	George Bush Intercontinental
4	Delta Air	Lufthansa
5	Orlando International	Washington Dulles International
6	Dallas/Fort Worth International	London Heathrow Airport
7	Ryan Air	Wizz Air
8	American Airlines	King Fahd International